Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) An error diffusion method applied to halftone processing for image data, the image data comprising a plurality of pixels, the method comprising the steps of:

dividing the image data into a plurality of image blocks;

for each of the image blocks, selecting one of the pixels belonging to ~~each of the image blocks~~ the image block being processed as a target pixel and as a starting pixel from which an error diffusion calculation is to be executed in a direction across the image block, wherein the target pixel is located on [[the]] a boundary of the ~~corresponding~~ image block;

assigning a predicted error to the target pixel, wherein the predicted error is determined according to at least an error diffused from a last pixel which is adjacent to the target pixel, wherein the last pixel and the target pixel do not belong to the same image block; and

executing the error diffusion ~~method~~ calculation on the rest of the pixels of the image blocks in the direction across the image block according to the predicted error of the target pixels of the image blocks.

2. (Currently amended) The method according to claim 1, wherein in the step of assigning, the predicted error is assigned to be 0 when the last pixel is not obtained.

3. (Canceled)

4. (Currently amended) The method according to ~~claim 3~~ claim 1, wherein the last pixel is adjacent to the target pixel in either a transversal or a longitudinal direction.

5. (Original) The method according to claim 4, wherein the image data is divided into the image blocks according to the location of the image blocks.

6. (Currently amended) An error diffusion method applied to halftone processing for image data, the error prediction method comprising the steps of:

dividing the image data into a plurality of image blocks, wherein each of the image blocks comprises a plurality of image rows, each of which comprises a plurality of pixels, and each of the pixels at least outputs an error;

for each of the image blocks, selecting one of the pixels belonging to one of the image rows of the image block being processed as a target pixel and as a starting pixel from which an error diffusion calculation is to be executed in a direction along the one of the image rows, wherein the target pixel is located on a boundary of ~~one of the image blocks~~ the image block;

assigning a predicted error of the target pixel, wherein the predicted error is determined according to at least an error diffused from a last pixel which is adjacent to the target pixel, wherein the last pixel and the target pixel do not belong to the same image block; and

executing the error diffusion ~~method~~ calculation on the rest of ~~the rest of~~ the pixels of the one of the image rows of the image blocks in the direction

along the one of the image rows according to the predicted error of the target pixels of the image blocks.

7. (Currently amended) The method according to claim 6, wherein the step of assigning is to assign the predicted error to be 0 when the last pixel is not obtained.

8. (Canceled)

9. (Currently amended) The method according to ~~claim 8~~ claim 6, wherein the last pixel is adjacent to the target pixel in either a transversal or a longitudinal direction.

10. (New) An error diffusion method applied to halftone processing for image data, the image data comprising a plurality of pixels, the method comprising the steps of:

dividing the image data into a plurality of image blocks, wherein each of the image blocks comprises a plurality of image rows, each of which comprises a plurality of pixels;

for each of the image blocks, performing error diffusion of the image rows of the image block being processed in alternate directions, the performing step comprising:

selecting a first one of the pixels belonging to a first one of the image rows of the image block being processed as a first target pixel and as a starting pixel from which an error diffusion calculation is to be executed in a first

direction along the first one of the image rows, wherein the first target pixel is located on a boundary of the image block;

assigning a first predicted error to the first target pixel;

executing the error diffusion calculation on the rest of the pixels of the first one of the image rows according to the first predicted error of the first target pixel in the first direction along the first one of the image rows;

selecting a second one of the pixels belonging to a second one of the image rows of the image block being processed as a second target pixel and as a starting pixel from which an error diffusion calculation is to be executed in a second direction along the second one of the image rows, wherein the second target pixel is located on a boundary of the image block;

assigning a second predicted error to the second target pixel; and

executing the error diffusion calculation on the rest of the pixels of the second one of the image rows according to the second predicted error of the second target pixel in the second direction along the second one of the image rows;

wherein the first direction is the opposite of the second direction.

11. (New) The method according to claim 10, wherein the first one of the image rows is an odd row of the image block and the second one of the image rows is an even row of the image block.

12. (New) The method according to claim 10, wherein the first one of the image rows is an even row of the image block and the second one of the image rows is an odd row of the image block.

13. (New) The method according to claim 10, wherein in the step of assigning a first predicted error to the first target pixel, the first predicted error is determined according to at least an error diffused from a last pixel which is adjacent to the first target pixel, wherein the last pixel and the first target pixel do not belong to the same image block.

14. (New) The method according to claim 13, wherein in the step of assigning a first predicted error to the first target pixel, the first predicted error is assigned to be a fixed value when the last pixel is not obtained.

15. (New) The method according to claim 13, wherein the last pixel is adjacent to the target pixel in either a transversal or a longitudinal direction.

16. (New) The method according to claim 10, wherein in the step of assigning a second predicted error to the first target pixel, the second predicted error is determined according to at least an error diffused from a last pixel which is adjacent to the second target pixel, wherein the last pixel and the second target pixel do not belong to the same image block.

17. (New) The method according to claim 16, wherein in the step of assigning a second predicted error to the second target pixel, the second predicted error is assigned to be a fixed value when the last pixel is not obtained.

18. (New) The method according to claim 16, wherein the last pixel is adjacent to the target pixel in either a transversal or a longitudinal direction.